

Operating Instructions SONO-VIEW



SONO-VIEW

Stand-alone display for the reliable control and configuration of processes using SONO moisture probes. A total of up to 4 SONO probes can be monitored and the respective measurement values presented at the LCD via a serial interface.

Thank you very much for your decision to purchase this IMKO product.

Should you have any questions in respect to this product, please contact our local distribution partner or IMKO directly.

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1 General Notices

Please carefully read and get acquainted with these operating instructions.

Should any queries arise, please contact our service department under the contact data depicted above. Do not, under no circumstances, attempt to open or repair the device yourself. In the event of any warranty claims, please refer these to the retailer you purchased the device.

The device is subject to technical and optical change within the scope of product improvement.

1.1 Intended Use

This device was developed to serve as a display and configuration device for various IMKO probes. Only the respectively intended probes may be connected to the device. The connection of any probe which is not intended for the device, can lead to damage or the destruction of this device and/or the connected probe.

2 Control Elements / Connections

2.1 Control Elements



2.2 Connections



USB (Type-Mini B)
-USB-IMP-Bridge
-Firmware Update

-Supply Voltage
-Bus-Interface

3 Initial Commissioning

3.1 Safety Instructions

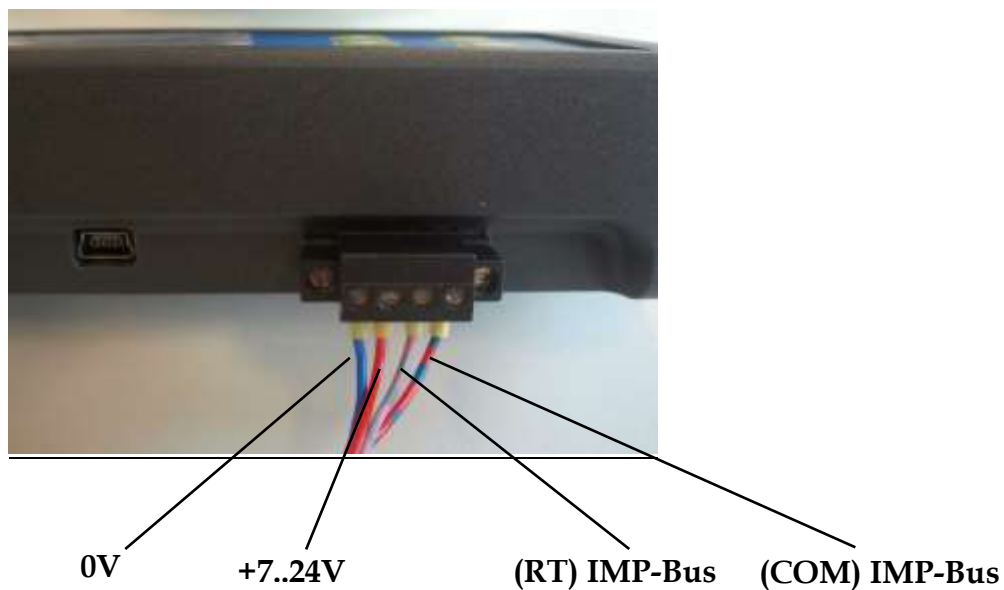
Attention: It is strictly necessary to read the General Notices contained under Item I at the beginning of the operating instructions. Any not intended use of the device can lead to damage to this device.

3.2 Checking the Package Content for Completeness

- SONO-VIEW
- Terminal Block
- USB Cable (Type A → Mini B)

3.3 Connection

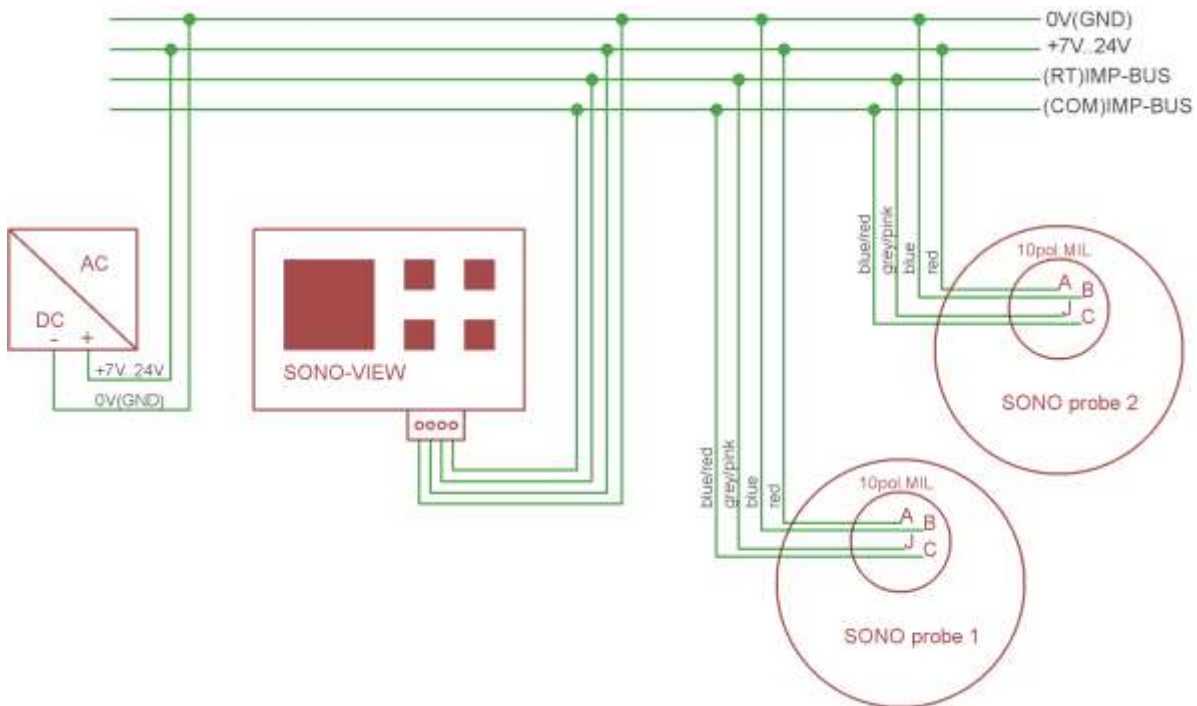
For operation, the SONO-VIEW requires a supply voltage of 7...24V (approx. 80..30mA). A joint ground wire together with the probes is not required. For the connection with the probes, it is sufficient to merely connect the two bus lines „RT“ and „COM“.



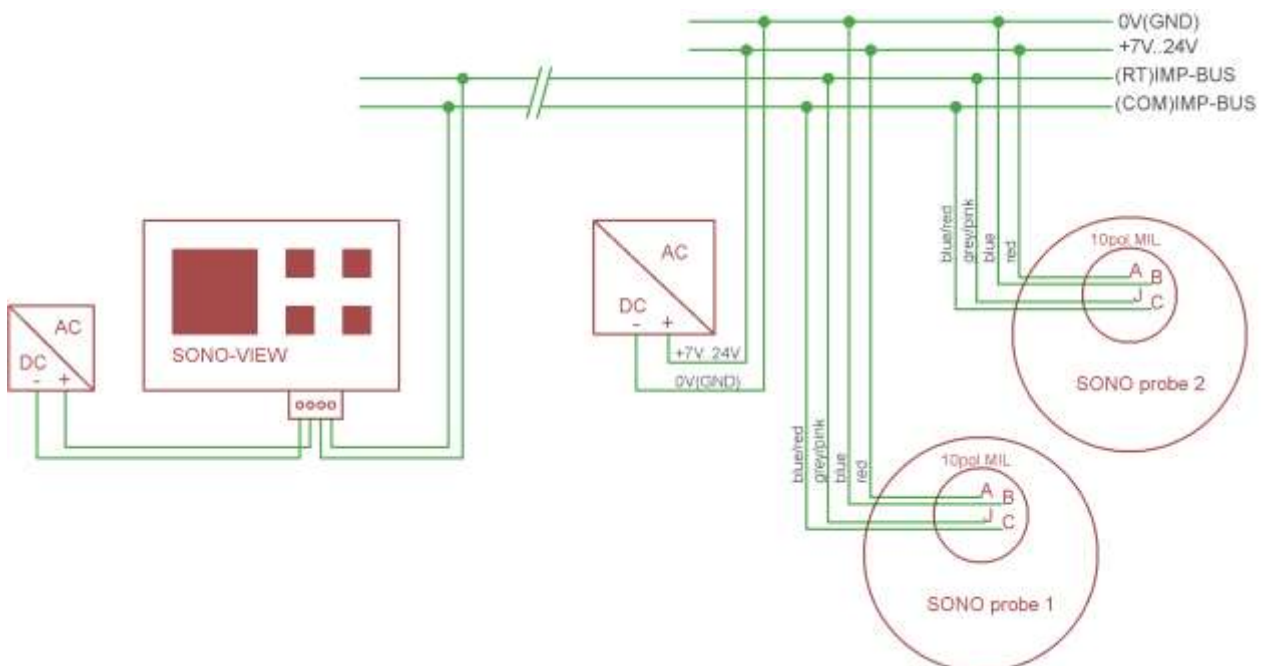
Notice: The SONO-VIEW is suited for the display and configuration of up to four probes. Should more than four probes be connected, an error message will be generated and the device can not operate correctly.

3.3.1 Exemplary Connections

Example 1: Connection of the SONO-VIEW with two SONO probes and one joint voltage supply source.



Example 2: Connection of the SONO-VIEW with 2 SONO-probes merely via IMP-bus. SONO-VIEW and the probes dispose of their voltage supply. This may be useful, if the distance between the measuring equipment and the display device is considerable.



4 Operation

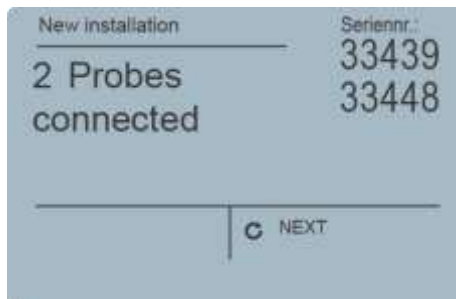
4.1 Initial and New Installation

At the initial connection to your probe-network, it is necessary to set the same up, respectively follow an installation procedure at the SONO-VIEW.



For this purpose, the device will scan the IMB bus for connected probes.




Initiate the installation with the button .



After an instant, the serial numbers of all connected probes are listed in the display.



In order to maintain the clarity within the administration of the probes, the SONO-VIEW operates on the basis of assigned probe numbers (1...4).

These must be allocated to the detected serial numbers in the next step. For each probe number, select a serial number using the  /  buttons and subsequently acknowledge the same with the button .



Repeat this procedure until all serial numbers have been allocated a probe number.



After completion of the above steps, all probe numbers will be presented once more together with the respectively allocated serial numbers in ascending order.

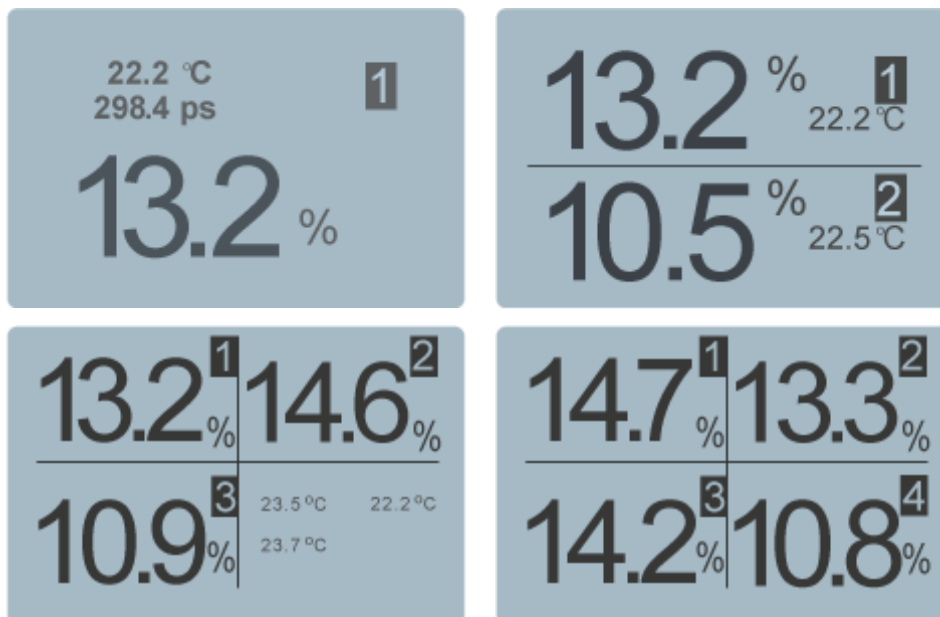
Complete the installation process with the button **C**.

Notice: The SONO-VIEW is suited for the display and configuration of up to four probes. Should more than four probes be connected, an error message will be generated and the device will not be able to operate properly.

After completion of the installation process, the SONO-VIEW will re-start, verify the connected probes, and will immediately commence to call up the measurement values.

4.2 Measurement Value Display

The SONO-VIEW immediately commences to call up and display the measurement values after start-up. This is performed in a 500 ms cycle. Depending on how many probes are connected, from one to four, the following displays will be presented.




The moisture value in percent and the respective probe number is always presented. If two or three probes are connected, the temperature measured by the probe is additionally also presented. In the event that only one probe is connected, the calibrated radar run-time is also presented.

If more than one probe is connected to the SONO-VIEW, there is an option to change the display. For this purpose, actuate the buttons **▲** / **▼**. Subsequently, all connected individual probes are presented consecutively. For the purpose of allocation, the probe number is

always also presented in the upper section. If this form of display is maintained for a longer period, the same will be assumed as „Standard“. In this case, the SONO-VIEW will present this set measurement display form after a re-start.





4.4 Settings

Actuate the button  while the measurement display is active and you will reach the setup menu. Here, you are enabled to perform various settings and call up information regarding the SONO-VIEW.



The setup menu features the following structure:





<u>Setting</u>	<u>Description</u>
New Setup	Enables a new detection of connected probes
Language	Setting of the language
Display Contrast	Setting of the display contrast
About SONO-VIEW	Serial number and further information regarding your SONO-VIEW
Info	Support information
USB-IMP-Bridge	Enables the comfortable configuration of your probes via PC

Set the desired setting using the buttons  / . By actuating the button , you can subsequently enter the selected setting. Actuate the button  again in order to exit the setup menu.

4.4.1 New Set-Up

See Section 4.1 „Initial and New Installation“

4.4.2 Language

The selection of the language is performed with the buttons  / . By actuating the button , the selected language is set as the standard language. To exit the menu item “Language”, actuate the button .

4.4.3 Display Contrast

A bar containing a grey colour gradation will appear.



Set the contrast using the buttons ▲ / ▼ in a manner that enables you to recognise all grades. Store the set value with the button C. To exit the menu item „Display Contrast“, actuate the button ➡.

4.4.4 Information about your SONO-VIEW



The device will present the serial number, the HW-version, the IBT version, as well as the firmware version. By actuating the button ▲, the device will present further status information such as the currently connected probes and system voltage values. To exit the menu item „About SONO-VIEW“, actuate the button ➡.

4.4.5 Info

Contains links to the IMKO homepage and the E-mail address to request support.

4.4.6 USB-IMP-Bridge


As soon as this menu item is called up, the SONO-VIEW changes into a transparent data mode. All data packets will be now redirected from the USB interface directly on to the IMP-bus and vice versa. This enables a comfortable configuration of the probes via a connected PC without the necessity of additional hardware. For this purpose, please download the free software „SonoConfig“ as well as the respective operating instructions available on the IMKO-homepage.





Connect the SONO-VIEW to the PC using the provided USB cable. The SONO-VIEW will connect with the PC as a virtual serial interface (COM-Port). The respectively required driver is usually automatically installed by all currently used Windows versions. Should the driver

not be automatically installed, please download the driver under:
<http://www.ftdichip.com/Drivers/VCP.htm>.

Notice: As long as the SONO-VIEW is in the USB-IMP-Bridge modus, no measurement values are queried by the probe. The probes however continue to measure and issue the measurement value at the analogue output.




Actuate the button  in order to exit the menu item „USB-IMP-Bridge“.

4.5 Probe Settings

The SONO-VIEW offers the option to comprehensively configure the connected probes even without PC. Settings such as offset displacements or the selection of a material-specific calibration can be simply adjusted with the buttons  / .

The menu “Probe Settings” respectively offers the following options:

<u>Setting</u>	<u>Description</u>
Probe Info	Presents information regarding the connected probe
Material Calibr.	Selection of a material-specific calibration
Offset balancing	Displacement of the measurement value
Average Mode	Setting of the method of averaging
Average Paramet	Setting of the parameters of the set averaging method
Basic balancing	„Zero Value“ calibration of the probe in ambient air

To reach the probe settings, select the individual probe display mode for the probe intended for configuration in the measuring display using the  /  buttons (also see Item 4.2). By actuating the button , the probe setting of the currently used probe is called up.

Notice: It is only possible to configure one probe at a time. Should several probes require to be adjusted, the procedure must be respectively repeated for these other probes.


Attention: Ensure that the correct probe is set before commencing with adjusting the parameters.

Attention: The SONO-VIEW offers the option to access the measuring parameters of the probe. Before adjusting any parameters, please inform yourself precisely in regard to the function of the same in the respective probe manual. Any performed changes may affect the measurement value, the accuracy, and the measuring rate.





4.5.1 Probe Info

If this menu item is selected, various information of the probe is called up and displayed.



You can exit the menu item „Probe Info“ with the button .





4.5.2 Material Calibration

The menu item „Material Calibration“ enables to adjust a material-specific calibration stored in the probe. This enables to significantly increase the accuracy of the measurement. There are up to 15 material-specific calibrations deposited in the firmware of a SONO probe. These are presented here and can be selected with the buttons  / . The character „1“ set in front of a calibration hereby points out the current standard calibration. Store the selected calibration as standard in the probe using the button . The set calibration will subsequently be stored in the non-volatile memory of the probe. The menu item “Material calibration” is exited by actuating the button .

4.5.3 Offset Balancing

In order to compensate measurement errors e.g. due to density deviations in the material or due to the installation conditions, there is an option to perform a linear displacement of the measurement value. This is the purpose of this menu item. It is possible to displace the measurement value between -10 and +10 percent points. The set displacement is stored in the probe and will subsequently also affect the analogue output. The setting is maintained in a traceable manner.



Adjust the offset to the desired value using the buttons  / . Subsequently store the set value in the probe with the button . You can exit this menu item with the button .

4.5.4 Averaging Mode

This menu item enables the activation, respectively the changing of a measurement value establishment in the probe. The IMKO moisture probe respectively offers the following options:

Mode CS: (cyclic-successive) Without averaging function intended for very short measuring processes in a range limited to seconds (e.g. 5...20 seconds) at which up to 100 measurements

are performed internally per second at a cycle time of 250 milliseconds at the analogue output. The operating mode CS also serves for the collection of raw values without averaging and filter functions.

Mode CA: (cyclic average filter) Standard averaging for relatively fast but continuous measurement processes with filtering and an accuracy of up to 0.1%.

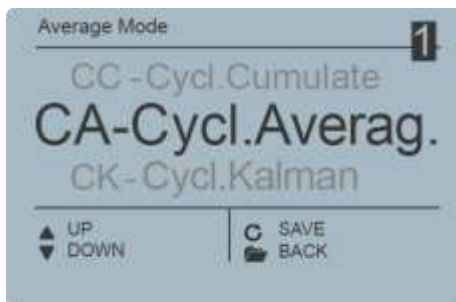
Mode CF: (cyclic floating average with filter) Floating averaging for very slow and continuous measurement processes with filtering and an accuracy of up to 0.1%.

This is suited for applications such as within a fluid bed dryer, on the conveyor belt, etc.

Mode CK: (cyclic with Kalman filter) suitable for complex application

Mode CC: (cyclic cumulated) with automatic summation of the moisture-quantity measurements in one batch operation.

Notice: Please respectively also read the further information contained in your probe operator manual.



Set the desired „Average Mode“ with the buttons ▲ / ▼ and subsequently set the set mode as standard with the button C. Once this is performed, the setting is stored in the probe. You can exit the menu item „Average Mode“ with the button [EXIT].

4.5.5 Averaging Parameters

Depending on the set „Averaging Mode“, there are various „Average Parameters“ available for control purposes.

<u>Averaging Mode</u>	<u>Available Parameters</u>
CA - Cyclic Average	Average Time
	Filter Upper Limit Offset
	Filter Lower Limit Offset
	Upper Limit Keep Time
	Lower Limit Keep Time
CK - Cyclic Kalman	Kalman with Boost
	Average Time
	Filter Upper Limit Offset
	Filter Lower Limit Offset
	Upper Limit Keep Time
	Lower Limit Keep Time
	Q-Parameter
	R-Parameter
	K-Parameter
	Moisture Threshold
	Boost
	Offset




CF - Cyclic Floating	Average Time
	Filter Upper Limit Offset
	Filter Lower Limit Offset
	Upper Limit Keep Time
	Lower Limit Keep Time
CC - Cyclic Cumulate	Moisture Threshold
	No Material Delay

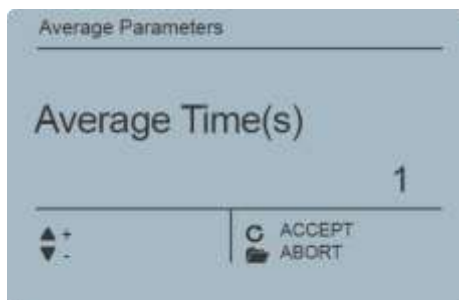
Notice: Please respectively also read the further information contained in your probe operator manual.





Attention: Before adjusting a parameter, please precisely inform yourself in regard to the function of the same. Any performed change may affect the measurement value, the accuracy, and the measuring rate.

The parameters are dynamically enabled with the set „Average Parameter“.





The buttons  /  serve for the navigation between the individual parameters. The current value of the selected parameter is presented in the lower left section of the display. To change the value, actuate the button .



The value will now appear enlarged in the display. Adjust the value with the buttons  /  and subsequently assume the same with the button . You also have the option to exit the entry with the button  without performing any change to the value. Repeat this procedure for all parameters intended for adjustment.

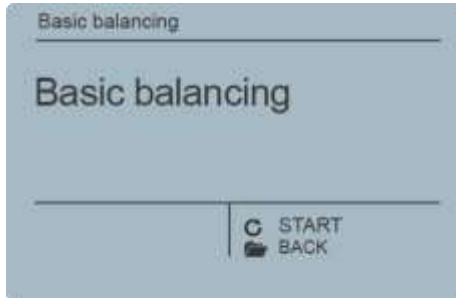



As soon as you have performed all adjustments as desired, select the item „Save“ and acknowledge the same with the button . Now, the parameters are written back into the probe and are immediately effective.

You can exit the menu item „Average Parameters“ with the button  without saving the same. Hereby, all performed changes are deleted!

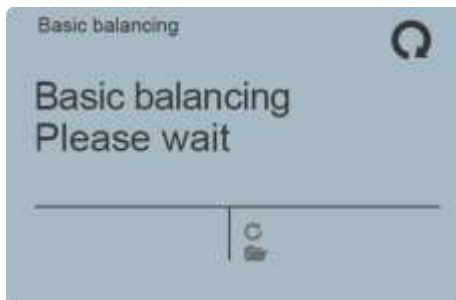
4.5.6 Basic Balancing

At the exchange of a sensor head, due to deviating cable lengths, it may be necessary to perform a basic balancing in air. Hereby, the moisture measurement value of the probe is re-aligned to the correct „Zero Value“.



Actuate the button  in order to start the basic balancing. The balancing will be performed subsequently.

Attention: In order to exclude the occurrence of a faulty air calibration, the sensor must be dry and free of any material during basic balancing.



The notice „Please wait „will be generated in the display. The procedure lasts approximately 30 seconds.

5 Technical Data

Power Supply	+7 .. 24V DC / 0.7W
Operating Temperature	0 .. 50°C
Dimensions	145mm x 75mm x 34 mm
Weight	153g
Mounting	Cap Rail (optional)
Interfaces	IMP-Bus (RT / COM) USB Mini-B (galvanically isolated)

Notes:

Notes:

Precise Moisture Measurement

**in hydrology, forestry, agriculture, environmental and earth science,
civil engineering, as well as individual applications!**